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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/632,303	08/04/2000	Lawrence W. Yonge III	04838-053001	1673
26161	7590	03/29/2005	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			RYMAN, DANIEL J	
			ART UNIT	PAPER NUMBER
			2665	

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/632,303		YONGE ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Daniel J. Ryman		2665	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 September 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/29/04, 11/3/04</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 9/30/2004 have been fully considered but they are not persuasive. On page 7-8 of the Response, Applicant argues that Grabelsky does not disclose "restricting which stations are permitted to contend during a contention period." Examiner, respectfully, disagrees. Grabelsky expressly discloses having a restricted-contention period in which stations are restricted from contending during the contention period (col. 4, lines 44-64; col. 5, lines 23-32; col. 5, lines 56-67; and col. 6, lines 14-56).
2. Applicant also argues that, in Grabelsky, "[t]here is no suggestion that a station receives contention control information in a prior frame." Again, Examiner, respectfully, disagrees. Grabelsky discloses using a combined contention signal to indicate which station is permitted to transmit in the open contention interval (col. 4, lines 44-64; col. 5, lines 23-32; col. 5, lines 56-67; and col. 6, lines 14-56). Once this interval is passed, a restricted contention interval can occur in which the stations that did not win access during the open-contention interval are restricted from transmitting (col. 4, lines 44-64; col. 5, lines 23-32; col. 5, lines 56-67; and col. 6, lines 14-56). Thus, Grabelsky does suggest that a station receives contention control information in a prior frame.
3. For the previous reasons, Examiner maintains the rejection of claims 1-23.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Grabelsky et al. (USPN 6,169,744).

6. Regarding claims 1 and 23, Grabelsky discloses in a network of stations interconnected by a transmission medium, a method of and unit for access contention by a first station having a frame to be transmitted, the method comprising the steps of and the unit comprising means for: having the first station detect contention control information (combined-contention signal) from information transmitted by another station in a prior frame (open-contention interval); and determining from the contention control information if the first station is permitted to contend for access during a contention period (restricted-contention interval) (col. 4, lines 44-64; col. 5, lines 23-32; col. 5, lines 56-67; and col. 6, lines 14-56) where a station that did not win during the open-contention interval will not be permitted to transmit during the restricted-contention interval.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 2-9, 15-18, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabelsky et al. (USPN 6,169,744) as applied to claims 1 and 23 above, and further in view of Lee (USPN 5,892,769).

9. Regarding claim 2, Grabelsky discloses determining if the contention control information indicates a contention-free access (col. 4, lines 44-64; col. 5, lines 23-32; col. 5, lines 56-67; and col. 6, lines 14-56) where the combined-contention signal signals to the stations if there is contention; and if the contention control information indicates a contention-free access, determining if a channel access priority level associated with the frame to be transmitted is higher than a channel access priority level of other transmitting stations (col. 5, lines 50-53 and col. 6, lines 14-18).

Grabelsky fails to expressly disclose determining if that channel access priority level is higher than that of a last transmitted frame when the transmission medium is contention-free. Lee discloses that a multiple access protocol may be contention-free or contention-based (col. 1, lines 36-43), wherein a contention-free method identifies the highest priority busy user in the system so that this user may access the data subchannel first (col. 4, lines 28-32). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to support both the contention based and contention-free methods of channel access in the invention of Grabelsky. One of ordinary skill in the art would have been motivated to add this feature in order to reduce the overhead due to collisions when the network is heavily loaded with data frames.

10. Regarding claim 3, Grabelsky in view of Lee discloses if the contention control information does not indicate a contention-free status, detecting whether any station in the network of stations intends to contend for access to the medium at a channel access priority level

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that is higher than the channel access priority level associated with the frame to be transmitted (Grabelsky: col. 6, lines 14-24 and col. 8, lines 1-26).

11. Regarding claim 4, Grabelsky in view of Lee discloses deferring contention for access to the transmission medium to any such station intending to contend for access at the higher channel access priority level (Grabelsky: col. 6, lines 14-24 and col. 8, lines 1-26).

12. Regarding claim 5, Grabelsky in view of Lee discloses contending for access to the medium during the next contention period if no higher channel access priority level is detected (Grabelsky: col. 6, lines 14-24 and col. 8, lines 1-26).

13. Regarding claim 6, Grabelsky in view of Lee discloses signaling an intention to contend at the associated channel access priority level to other stations prior to the contention period (Grabelsky: col. 4, lines 44-64; col. 5, lines 23-32; col. 5, lines 56-67; and col. 6, lines 14-56).

14. Regarding claim 7, Grabelsky discloses establishing a delay period (restricted-contention-delay-interval) and repeating the steps (62-82) (Grabelsky: col. 6 lines 33-56), in which the contending stations will again broadcast intent-to-transmit signals.

Grabelsky fails to expressly disclose that the delay period is a random backoff time. Lee discloses that in one approach to a collision is to simply retransmit the message after some random amount of time (col. 2, lines 1-6). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a random backoff period for the restricted-contention-delay-interval of Grabelsky. One of ordinary skill in the art would have been motivated to do this in order to decrease the chance of a collision on the second attempt, thus avoiding the overhead of repeating the steps (62-82) again.

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15. Regarding claim 8, Grabelsky discloses that the station with the highest resolved frequency, which is related to priority level, immediately begins to transmit data on the transmission medium in step (72) (col. 6, lines 14-18). If no collision is detected, i.e. no other activity on the medium, the station continues to transmit at step (76) (col. 6, lines 28-32).

16. Regarding claim 9, Grabelsky discloses detecting the priority levels of all stations with the intent-to-transmit and resolving the highest priority level (col. 5, lines 56-67 and col. 6, lines 14-24). This priority resolution occurs prior to the restricted-contention-delay-interval (col. 6, lines 33-44).

17. Regarding claims 15-17, Grabelsky discloses waiting a dead-time-silence-interval after the end of a last transmission before beginning an open-contention-interval. Grabelsky also discloses that if transmission is in progress, waiting until that transmission is complete before starting the dead-time-silence-interval (col. 5, lines 21-32). The system performs a monitoring of the transmission line equivalent to the physical carrier sense of the present invention. The ability of Grabelsky's invention to determine the end of a transmission and to measure a dead-time-silence-interval inherently meet the limitations of a using end of frame control information and a virtual carrier sense timer.

18. Regarding claim 18, Grabelsky discloses broadcasting contention control information and channel access priority levels (col. 5, lines 56-67 and col. 6, lines 14-24).

19. Regarding claim 22, Grabelsky discloses beginning an open-contention-interval after silence is detected for a duration equal to, or greater than, a dead-time-silence interval (col. 5, lines 23-32). It is during the open-contention-interval that the priority resolution occurs.

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20. Claims 10-14, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabelsky et al. (US 6,169,744) in view of Lee (US 5,892,769) as applied to claims 2-9, 15-18 and 22 above, and further in view of Petry (US 6,222,851).

21. Regarding claim 10, Grabelsky in view of Lee fails to expressly disclose a priority resolution slots that supports  $2n$  channel access priority levels. Petry discloses three frequency bins to indicate a priority (col. 4, lines 1-67). Petry shows four priority levels (000, 100, 010, 001), however, it is obvious that the three-bit binary notation could support up to  $2n$ , or 8, priority levels. Each frequency bin in the priority notation of Petry represents a priority resolution slot as in the present invention. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the priority slots of Petry to denote the priority level of a transmission frame in the system provided by Grabelsky in view of Lee. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use up to  $2n$  priority levels, which could easily be supported by the system of Petry. One of ordinary skill in the art would have been motivated to use the priority slots of Petry in order to code the priority levels into a form that could be easily determined at each station when performing priority resolution. One of ordinary skill in the art would have been motivated to use up to  $2n$  priority levels in order to provide a greater stratification of network traffic, thus supporting a greater variety of traffic with different delay requirements.

22. Regarding claim 11, the system provided by Grabelsky in view of Lee and Petry described in the preceding paragraph fails to expressly disclose using a two-bit binary value for each priority level. However, it is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a



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showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). At the time the invention was made it would have been obvious to a person of ordinary skill in the m to use a two-bit binary value to indicate each priority level. One of ordinary skill in the art would have been motivated to do this to save bandwidth if the particular implementation required 4 or less priority levels.

23. Regarding claims 12-14, Petry discloses frequency bins for indicated priority, which represent the priority slots of the present invention, as described above. A binary one is placed in the appropriate slot to convey the desired priority level (col. 4, line 61 - col. 5, line 9).

24. Regarding claim 19, Grabelsky in view of Lee fails to expressly provide that the contention control information is a flag that indicates contention-free status when set. Petry discloses a flag value indication that contention no longer exists (col. 3, lines 31-32). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use this contention-free flag to signal to a station in the invention of Grabelsky that the transmission medium was not in contention. One of ordinary skill in the art would have been motivated to do this to avoid the overhead processing of a priority resolution and simply to notify the station to transmit.

25. Regarding claim 21, Grabelsky in view of Lee fails to expressly disclose using OFDM signaling. Petry discloses using constant tones in OFDM frequency bins to resolve contention

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between multiple transmitting nodes (col. 3, lines 13-15). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use OFDM signaling to perform the contention resolution in the system provided by Grabelsky in view of Lee. One of ordinary skill in the art would have been motivated to use OFDM to make more efficient use of the frequency spectrum.

26. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grabelsky et al. (US 6,169,744) in view of Lee (US 5,892,769) as applied to claims 2-9, 15-18 and 22 above, and further in view of Karner (PG Pub 2001/0048692).

27. Regarding claim 20, Grabelsky in view of Lee fails to expressly disclose that the transmission medium is a power line. Karner discloses a power line network that uses a priority method for medium access control (paragraph (00351). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement the contention resolution system of Grabelsky in view of Lee in a power line network. One of ordinary skill in the art would have been motivated to use a power line transmission medium in order to manage utility electrical distribution systems in buildings.

### *Conclusion*

28. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Ryman  
Examiner  
Art Unit 2665

*[Signature]*

*[Signature]*

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SUPERVISORY PATENT EXAMINER  
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